

A NEW SPECIES OF *TRICHOGRAMMA* FROM URUGUAY (HYMENOPTERA: TRICHOGRAMMATIDAE)

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ABSTRACT

A new species of *Trichogramma* is described from Uruguay, *T. bellaunionensis*, where it parasitizes *Diatraea saccharalis*. This species is the only American representative of the *kalkae* group which was up to now only known from Africa by two species.

Key words: *Diatraea*, egg parasitoid, new species, *Trichogramma*, Uruguay.

RESUMEN

Una nueva especie de *Trichogramma* es descrita para Uruguay, *T. bellaunionensis*, parasitando *Diatraea saccharalis*. Es la única integrante del grupo *kalkae* en el continente americano. Hasta el momento, este grupo solo era conocido de Africa por dos especies.

Palabras clave: *Diatraea*, parasitoide de huevos, nueva especie, *Trichogramma*, Uruguay.

INTRODUCTION

The genus *Trichogramma* Westwood includes numerous species of minute wasps parasitizing insect eggs and especially Lepidoptera eggs. It occurs worldwide and is commonly used in biological control. Pinto & Stouthamer (1994) estimated the number of species to 145, and Pinto (1997) estimated this number to 160 (ca. 30 species in the Neotropical region). The genus is divided into three subgenera (nominate subgenus, *Trichogrammanza* Carver, and *Vanlisus* Pinto) and many groups of species. The *Trichogramma* species from the Neotropical and Nearctic regions belong to the nominate subgenus divided into 15 groups (Pintureau, 1993) and the *Vanlisus* subgenus divided into 2 groups (Pinto, 1998).

Few *Trichogramma* species are known from Uruguay. Silveira Guido & Ruffinelli (1956) listed only one, *T. minutum* Riley, and it is an unreliable determination. Basso & Morey (1991) and Basso & Grille (1994) listed 3 other species whose identity was confirmed by J.D. Pinto and R.A. Zucchi, *T. pretiosum* Riley, *T. galloi* Zucchi and *T. distinctum* Zucchi. Zucchi *et al.* (1996) and Zucchi & Monteiro (1997) mentioned only the first two species. Monje (1995) listed 5 species from Brazil and Uruguay but did not differentiate their origin.

New collections were made since 1991 in Uruguay to improve our knowledge of the genus and select strains usable in biological control against some local pests. Among that material, a new species was recognized and is described in the present paper.

MATERIAL AND METHODS

Studied parasitoids emerged from *Diatraea saccharalis* (Fabricius) (Lep.: Pyralidae) eggs collected on rice in the Bella Unión region (Departamento de Artigas in the northern west of Uruguay)

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in February 1991. Most of the parasitized egg masses were infested by *T. galloi*, and one was infested by the new species. A strain of the latter species (strain 51) was established and reared on *Ephestia kuehniella* Zeller (Lep.: Pyralidae) at 25°C, 70% RH and L:D 16:8.

Individuals of the type series were mounted in Canada balsam on slides. The morphological terminology of Pinto (1992) was used for the species description. Several measurements of morphological characters in 19 males allowed the calculation of mean ratios (most of the female characters are of poor interest in systematics).

Abbreviations: MNHN, Museum d'Histoire Naturelle de Paris; NMNH, National Museum of Natural History, Smithsonian Institution, Washington, D.C.

DESCRIPTION OF THE NEW SPECIES

TRICHOGRAMMA BELLAUNIONENSIS, sp.n.

Diagnosis: The species belongs to the *Trichogramma* subgenus (Pinto, 1998) and the *kalkae* group (Pintureau & Babault, 1988; Pintureau, 1993) up to now comprising only two African species, *T. kalkae* Schulten & Feijen and *T. pinneyi* Schulten & Feijen. This group is characterized by a dorsal lamina (DLA) with a wide base and a pointed apex. The new species shows morphological differences with *T. kalkae* and *T. pinneyi* which have shorter setae on male flagellum, a DLA with a small notch on lateral margin (absent in *T. bellaunionensis* sp.n.) and a DLA apex exceeding the volsellar digit (VS) apex in *T. bellaunionensis* sp.n. By its long setae on male flagellum, the new species is similar to some South American species such as *T. bruni* Nagaraja and *T. castrensis* Velasquez de Ríos & Terán, but male genitalia, especially the DLA, are different. The DLA shows a narrower base in *T. bruni*, and is longer and presents an obvious lateral notch in *T. castrensis*. The new species is also close to the Central and North American species *T. lasallei* Pinto, but its DLA always shows a pointed apex, vs. an apex "usually obscurely pointed" (Pinto, 1998), and presents no lateral notch, vs. two narrow notches at base (Pinto, 1998). Moreover, *T. lasallei* shows longer aedeagus and ovipositor (0.91 and 1.22

length of hind tibia, respectively), and shorter seta on male flagellum (the longest reaches 2.77 basal width of flagellum).

Description: Color similar in males and females: dusky black except slightly paler femurs, antennae and stripes on abdominal terga, and much paler tibiae, tarsi and forehead.

Male: Antenna (Fig. 1b) with relatively long setae, length of longest seta on flagellum = 3.36 ± 0.06 basal width of flagellum. Flagellum relatively long, 6.05 ± 0.10 as long as basal width, 0.91 ± 0.01 as long as hind tibia. Forewing (Fig. 1a) 0.44 ± 0.03 as wide as long; longest fringe seta at posterolateral corner of wing 0.24 ± 0.02 as long as maximum wing width. Genital capsule (Fig. 1c) 0.37 ± 0.01 as wide as long. Base of DLA wide and without notch laterally, DLA apex pointed and not reaching VS apex. Intervolsellar process (IVP) triangular and moderately developed, its apex not reaching the DLA apex. VS apex a little closer to the DLA apex than to the paramere (PM) apex. Ventral ridge (VR) about as long as 0.27 distance between the base of genital capsule and the IVP apex. Entire aedeagus (Fig. 1d) 0.81 ± 0.02 as long as hind tibia (Fig. 1e). Aedeagus longer than apodemes (ratio = 1.29 ± 0.20).

Female: Genitalia (ovipositor) 1.32 as long as entire aedeagus and 1.05 as long as hind tibia.

Types and material examined: Holotype (one male), allotype (one female), 3 male paratypes and 3 female paratypes are deposited in the MNHN collection, 24 paratypes are deposited in NMNH (6 males and 6 females) and in the Montevideo Faculty of Agronomy (12 males). Three males of the same series, in a wrong condition after mounting, were examined.

Etymology: Named for Bella Unión, city of the northern west of Uruguay.

Hosts: The species is known only from eggs of *D. saccharalis* on rice.

Geographic distribution: Known only from Uruguay, Bella Unión region.

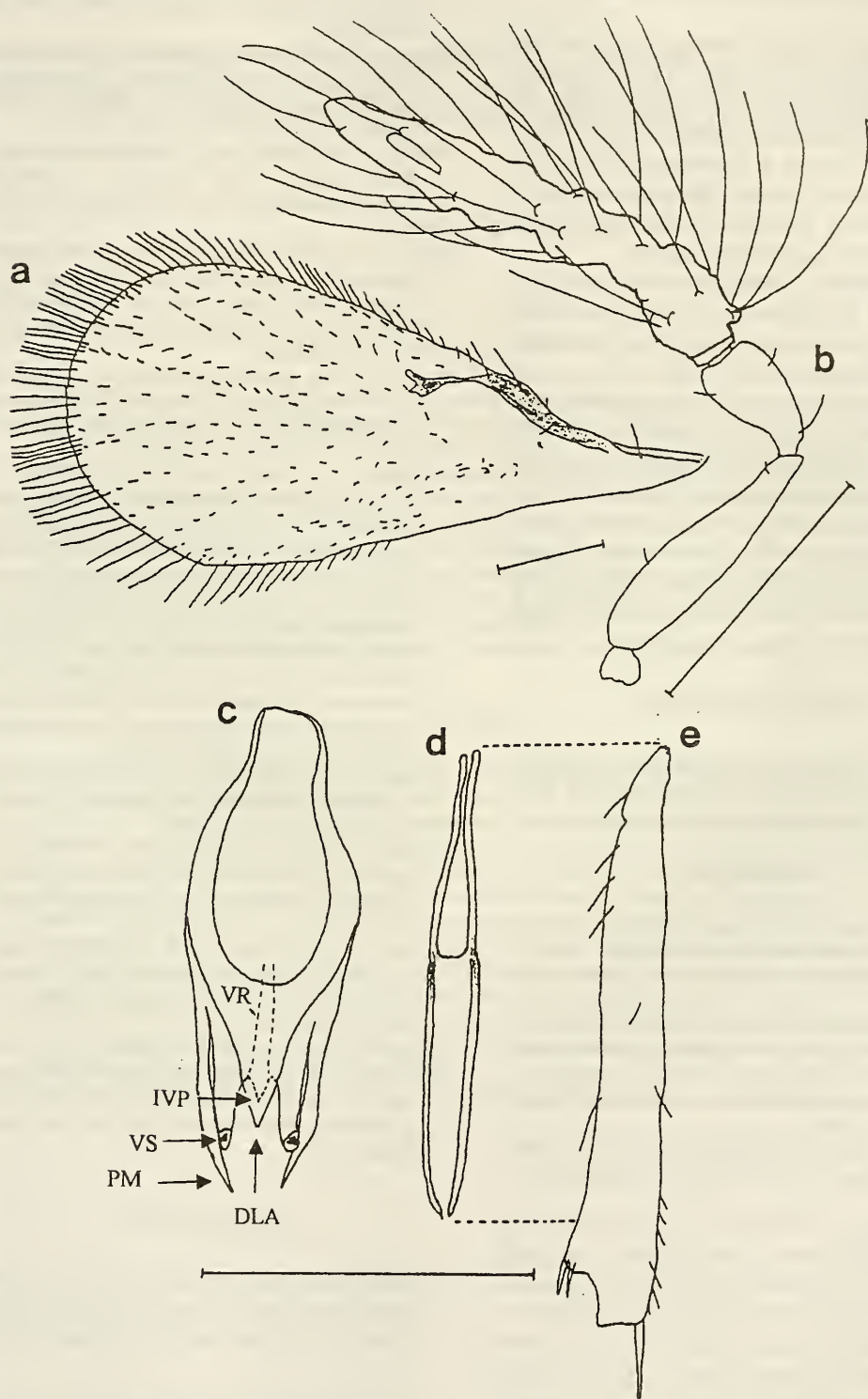


Figura 1: *T. bellaunionensis* sp.n. a, forewing. b, male antenna. c, male genitalia. d, entire aedeagus. e, hind tibia. Bars: 0.05 mm. "DLA: dorsal lamina, IVP: intervolvellar process, PM: paramere, VR: ventral ridge, VS: volsellar digit".

DISCUSSION AND CONCLUSION

The inventory of South American *Trichogramma* species is far to be closed. *Trichogramma bellaunionensis* is the first American species belonging to the *kalkae* group. This group, described by Voegelé & Pintureau (1982) from Africa, was scarcely studied. The determination of its phylogenetic position is thus premature (Pintureau, 1993, just listed the group).

The description of new species improves the knowledge of the biodiversity of egg parasitoids, and so is a key factor in the choice of the parasitoids usable in biological control. In fact, native species are generally more adapted to agrosystems than introduced species. In Uruguay, inundative releases of *Trichogramma* are still experimental. The native species *T. galloi* releases against *D. saccharalis* on sugarcane between 1988 and 1992 allowed a good control of the pest. The first attempt against Tortricidae moths of vine plants were carried out in 1996, but the most efficient *Trichogramma* species is still to be chosen (Basso *et al.*, 1999).

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